



# Volunteer Lake Assessment Program Individual Lake Reports

## ONWAY LAKE, RAYMOND, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	5,867	Max. Depth (m):	8.9	Flushing Rate (yr <sup>-1</sup> ):	5.3	Year	Trophic class	KNOWN EXOTIC SPECIES
Surface Area (Ac.):	192	Mean Depth (m):	3	P Retention Coef:	0.5	1989	MESOTROPHIC	
Shore Length (m):	3,900	Volume (m <sup>3</sup> ):	2,160,000	Elevation (ft):	265	2004	MESOTROPHIC	

### TROPHIC CLASSIFICATION

### KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

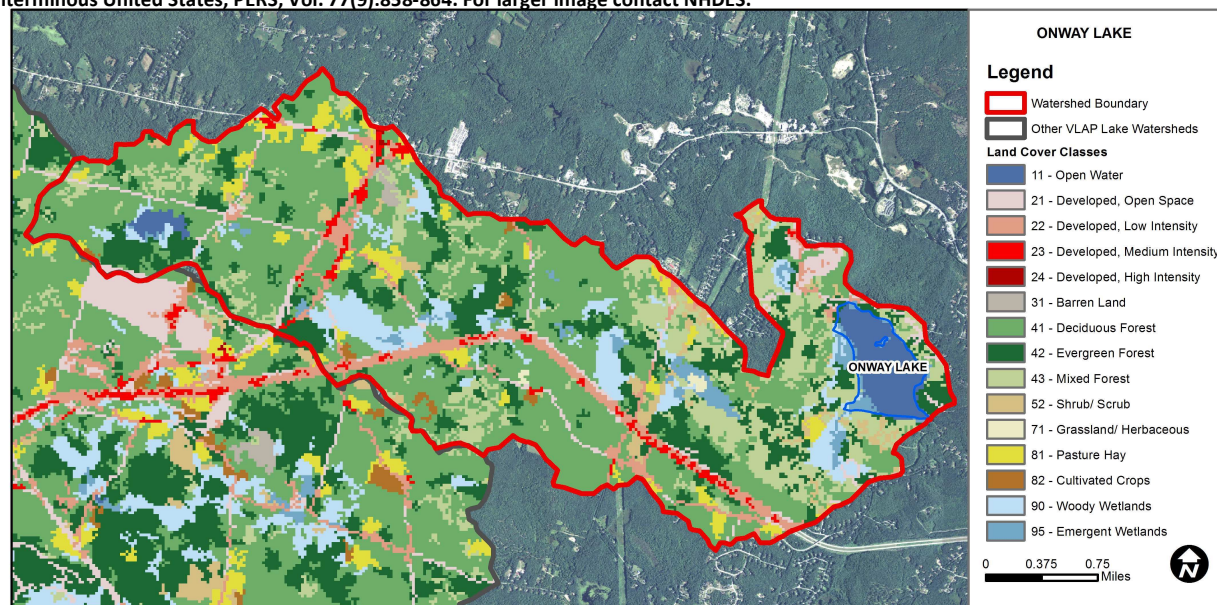
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

### BEACH PRIMARY CONTACT ASSESSMENT STATUS

ONWAY LAKE - CAMP ONWAY BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
ONWAY LAKE - RAYMOND TOWN BEACH	E. coli	No Data	No Data for this parameter.

### WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	3.54	Barren Land	0.27	Grassland/Herbaceous	0.2
Developed-Open Space	3.57	Deciduous Forest	42.19	Pasture Hay	4.05
Developed-Low Intensity	5.09	Evergreen Forest	14.73	Cultivated Crops	0.45
Developed-Medium Intensity	1.41	Mixed Forest	13.37	Woody Wetlands	6.26
Developed-High Intensity	0.04	Shrub-Scrub	2.51	Emergent Wetlands	2.28



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

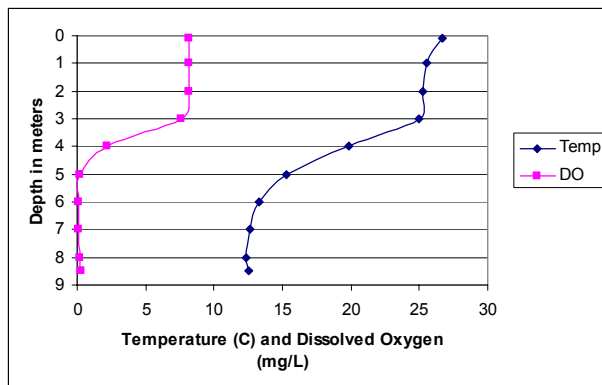
## ONWAY LAKE, RAYMOND, NH

### 2012 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels were relatively low and less than the NH lake median. Historical trend analysis indicates chlorophyll levels tend to fluctuate from year to year.
- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride levels were elevated and much greater than the NH lake medians.
- ♣ **E. COLI:** E. coli levels were much less than state standards for public beaches and surface waters.
- ♣ **TOTAL PHOSPHORUS:** Metalimnetic (middle water layer) and hypolimnetic (lower water layer) phosphorus levels were slightly elevated and turbidity was also slightly elevated either from algal growth or bottom sediments which could have contributed to elevated phosphorus. Epilimnetic (upper water layer) phosphorus was low and historical trend analysis indicates epilimnetic phosphorus fluctuates from year to year.
- ♣ **TRANSPARENCY:** Transparency improved from 2011 and was higher than the NH lake median. Historical trend analysis indicates transparency tends to fluctuate from year to year.
- ♣ **TURBIDITY:** Metalimnetic, hypolimnetic and Inlet turbidities were slightly elevated potentially due to algal growth or sediment contamination.
- ♣ **pH:** pH levels decrease in the water column and can be critical to aquatic life.
- ♣ **RECOMMENDED ACTIONS:** Increase monitoring frequency to three times per summer to better assess summer water quality and historical trends. Continue chloride monitoring to establish a baseline for the lake and tributaries. Educate watershed residents on ways to reduce stormwater runoff from their properties utilizing DES' "NH Homeowner's Guide to Stormwater Management".

#### Dissolved Oxygen & Temperature Profile



**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** 6.5-8.0 (unless naturally occurring)

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

**Transparency:** 3.2 m

**pH:** 6.6

Station Name	Table 1. 2012 Average Water Quality Data for ONWAY LAKE									
	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
Dam Outlet				170.9	10	10			1.68	7.05
Deep Epilimnion	10.3	2.72	28	169.1		8	3.55	3.95	1.09	6.91
Deep Metalimnion				167.1		15			1.51	6.33
Deep Hypolimnion				180.4		25			5.81	6.48
Inlet			36	198.5	10	21			1.58	6.60
Island Road					10					
No Name Inlet			45	248.0	20	20			1.80	7.00
Sandy Cove					10					
Seannikki					10					

#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Transparency	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Phosphorus (epilimnion)	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:  
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